

REMARKS

By this response, claims 32, 33 and 41-47 have been canceled without prejudice to or disclaimer of the subject matter contained therein (Applicants reserve the right to file a continuing application directed to the canceled subject matter); claims 20, 23-29, 31, 34-37 and 40 have been amended; and new claims 49-51 have been added, leaving claims 1-31, 34-40 and 48-51 pending in the application. No new matter has been added by the amendments.

Reconsideration and allowance are respectfully requested in view of the following remarks.

Rejection Under 35 U.S.C. § 103

Claims 20-48 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,638,335 to Ozaki et al. ("Ozaki"). Claims 32, 33 and 41-47 have been canceled. The rejection is respectfully traversed.

Claim 20, as amended, recites a process for preparing high density green compacts comprising "(a) subjecting a composition of an iron or iron-based powder, wherein less than about 5% of the powder particles have a size below 45 μm , and a lubricant added to the powder, to uniaxial compaction in a die at a compaction pressure of at least about 800 MPa; and (b) ejecting the green body from the die" (emphasis added). Support for the recitation of "less than about 5% of the powder particles have a size below 45 μm " is provided, for example, in the paragraph bridging pages 2-3 of the specification. Support for the recitation of "a lubricant added to the powder" is provided, for example, at page 4, last paragraph, and in

Examples 1 and 2 at pages 6-7, of the specification. In an exemplary embodiment of the claimed process, lubricant can be mixed with the powder and compacted using a desired compaction pressure. The process can advantageously be used for high volume P/M parts production.

Ozaki fails to suggest the claimed process. Ozaki discloses an iron powder containing particles that have a controlled microhardness. Ozaki discloses Examples 1-1 to 2 at column 13, line 27 to column 17, line 8. In Example 1-1 of Ozaki, each of the iron powders A1 to A10 was compacted using external die lubrication and a compaction pressure of 1,177 MPa to form a green compact. Ozaki does not disclose using internal lubrication of the powder in Example 1-1. In Example 1-2 of Ozaki, each of the iron powders A1 to A10 was also compacted using external die lubrication and a compaction pressure of 1,177 MPa to form a green compact. Ozaki also does not disclose using internal lubrication of the powder in Example 1-2. In Example 2 of Ozaki, each of the iron powders A1 to A10 was also compacted using external die lubrication and a compaction pressure of 1,177 MPa to form a green compact. Ozaki also does not disclose using internal lubrication of the powder in Example 2.

Ozaki also discloses a group of green compacts A1 to A18 in Table 1 at columns 5-8. Those compacts were formed using the compaction conditions A, B and C shown in Table 2, at columns 7 and 8. Condition A used internal lubrication, no external lubrication and a compaction pressure of 490 MPa; condition B did not use internal lubrication, but used external lubrication and a compaction pressure of 490 MPa, and condition C also did not use internal lubrication, but used external lubrication and a compaction pressure of 1177 MPa. Accordingly, Ozaki discloses

no example, and provides no suggestion, of adding a lubricant to the powder (i.e., internal lubrication) and applying a compaction pressure of at least about 800 MPa to the powder, as recited in Claim 20. Moreover, Applicants note that the highest density of the green compacts occurred using condition C with no internal lubrication. See Table 1 and Table 3 at columns 11-12 of Ozaki. Applicants submit that this disclosure would have led one having ordinary skill in the art away from the process of claim 20.

Exemplary embodiments of the process recited in claim 20 can also provide advantages. As was discussed at page 10, line 1 to page 11, line 15 of the Amendment filed on February 28, 2005, the process can be used to produce high-density green compacts with the recited composition wherein less than about 5% of the powder particles have a size below 45 μm , i.e., exemplary “coarse” particles, and a uniaxial compaction pressure of at least about 800 MPa, which is an exemplary “high” compaction pressure. The coarse particles, to which internal lubrication has been added, can be ejected from dies with low ejection forces and have desirable surface finishes. In contrast, Ozaki is silent regarding the influence of the smallest particles on the density, ejection force or surface appearance of the compacts. Applicants submit that results that can be provided by embodiments of the claimed process are sufficient to rebut the alleged *prima facie* obviousness.

For at least the foregoing reasons, the process of claim 20 is patentable over Ozaki. Dependent claims 21-31, 34-40 and 48 are also patentable over Ozaki for at least the same reasons as those for which claim 20 is patentable. Therefore, withdrawal of the rejection is respectfully requested.

New Claims

Claim 49 is dependent from claim 20 and recites that "the compaction is performed without using external lubrication" (emphasis added). Support for claim 49 is provided, for example, at page 4, last paragraph, and page 5, first paragraph of the specification.

Claims 50 and 51 depend from claims 49 and 20, respectively, and recite that "the powder is a water-atomized, completely alloyed steel powder." Support for claims 50 and 51 is provided, for example, at page 2, third and fifth full paragraphs of the specification.

Claims 49-51 are also patentable.

Conclusion

For the foregoing reasons, allowance of the application is respectfully requested. Should there be any questions concerning this response, to expedite prosecution, the Examiner is respectfully requested to contact the undersigned at the number given below.

Respectfully submitted,

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